WE CLAIM:

1. An electrophoresis device for focusing a charged analyte comprising:

a separation chamber having an inlet port and an outlet port defining between them a fluid flow path through the separation chamber for sample fluid comprising an analyte;

electrodes separated from the separation chamber by a membrane and operative when energized to generate an electric field gradient in the separation chamber; and

molecular sieve in the separation chamber operative to shift the location at which a stationary focused band of analyte forms under a given set of focusing process parameters including, at least

the electric field gradient, and

hydrodynamic force of sample fluid flow along the flow path through the separation chamber.

2. The electrophoresis device of claim 1 wherein there is a gradient in the electric field.

3. The electrophoresis device of claim 1 further comprising an electrode chamber with the electrodes positioned in the electrode chamber,

wherein the electrode chamber is separated from the separation chamber by the membrane, and

wherein the membrane is a permeable material.

4. The electrophoresis device of claim 3, wherein the electrode chamber is non-uniform and the separation chamber is encircled longitudinally by the electrode chamber.

5. The electrophoretic device of claim 1, wherein the electrodes comprise an electrode array.

6. The electrophoresis device of claim 5, wherein each electrode of the electrode array is capable of being individually controlled.

7. The electrophoresis device of claim 5, wherein the electrode array is operative to generate an electric field gradient which can be dynamically controlled.

8. The electrophoresis device of claim 1, wherein the degree to which the stationary focused band of charged analyte is shifted for a given set of focusing conditions varies with the molecular weight of the charged analyte.

9. The electrophoresis device of claim 1, wherein the degree to which the stationary focused band of charged analyte is shifted for a given set of focusing conditions varies with the molecular size of the charged analyte

10. The electrophoresis device of claim 1, wherein the degree to which the stationary focused band of charged analyte is shifted for a given set of focusing conditions is proportional to the molecular weight of the charged analyte.

11. The electrophoresis device of claim 1, wherein the sieve comprises a gel.

12. The electrophoresis device of claim 11, wherein the gel is an organic gel.

13. The electrophoresis device of claim 11, wherein the gel is an inorganic gel.

14. The electrophoresis device of claim 11, wherein the gel is a fixed gel.

15. The electrophoresis device of claim 11, wherein the gel is a soluble gel.

16. The electrophoresis device of claim 11, wherein the gel comprises molecules having a molecular weight of between about 2000 and about 100,000.

17. The electrophoresis device of claim 1, wherein the sieve comprises zeolite.

18. An electrophoretic device for focusing a charged analyte comprising:

a separation chamber comprising an inlet for introducing a first fluid into the separation chamber and an outlet for exiting the first liquid from the separation chamber;

an electrode chamber comprising an electrode array and an inlet for introducing a second liquid into the electrode chamber and an outlet for exiting the second liquid from the electrode chamber;

permeable material separating the separation and electrode chambers; and molecular sieve in the separation chamber operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

19. A device for focusing a charged analyte comprising:

a first block comprising a first trough having an inlet for introducing a first liquid to the first trough and an outlet for exiting the first liquid from the first trough;

a second block comprising a second trough having an inlet for introducing a second liquid to the second trough and an outlet for exiting the second liquid from the second trough, the second trough further comprising an electrode array positioned in the second trough

wherein the first trough and the second trough are substantially coincident and form a channel when the first block is sealed to the second block; and

permeable material intermediate the first and second blocks,

wherein the permeable material divides the channel formed when the first block is sealed to the second block into a first chamber and a second chamber, the second chamber including the electrode array, and wherein the first chamber comprises molecular sieve operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

20. A device for focusing a charged analyte comprising:

a first block having a first trough having an inlet for introducing a first liquid to the first trough and an outlet for exiting the first liquid from the first trough;

a second block having a second trough having an inlet for introducing a second liquid to the second trough and an outlet for exiting the second liquid from the second trough, the second trough further comprising an electrode array comprising a plurality of electrodes arranged linearly along the length of the second trough,

wherein the first trough and the second trough are substantially coincident and form a channel when the first block is sealed to the second block;

permeable material intermediate the first and second blocks;

a voltage controller for controlling the voltage applied to each electrode of the electrode array;

wherein the permeable material divides the channel formed when the first block is sealed to the second block into a first chamber and a second chamber, the second chamber including the electrode array, such that the first chamber and second chamber are in liquid communication and the first chamber is in electrical communication with the electrode array when the chambers are filled with a conductive liquid, and

wherein the first chamber comprises molecular sieve operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

21. A device for focusing and separating charged analytes comprising:

a separation chamber comprising an inlet for introducing a first liquid into the separation chamber and an outlet for exiting the first liquid from the separation chamber;

an electrode chamber comprising an electrode array and an inlet for introducing a second liquid into the electrode chamber and an outlet for exiting the second liquid from the electrode chamber;

permeable material separating the separation and electrode chambers; and

molecular sieve in the separation chamber operative to separate bands of charged analyte of similar electrophoretic mobilities and different molecular weights.

22. A device for focusing a charged analyte comprising:

a separation chamber comprising an inlet for introducing a first fluid into the separation chamber and an outlet for exiting the first liquid from the separation chamber;

an electrode array isolated from the separation chamber and operative to establish an electric field gradient in the separation chamber; and

molecular sieve in the separation chamber operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

23. An electrophoresis device for focusing a charged analyte comprising:

a separation chamber;

means for generating an electric field in the separation chamber; and

molecular sieve in the first chamber operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

24. A method for focusing a charged analyte comprising:

providing an electrophoresis device for focusing the analyte, comprising:

a separation chamber having an inlet port and an outlet port defining between them a fluid flow path through the separation chamber for sample fluid comprising the analyte;

electrodes separated from the separation chamber by a membrane and operative when energized to generate an electric field gradient in the separation chamber; and

molecular sieve in the separation chamber operative to shift the location at which a stationary focused band of the analyte forms under a given set of focusing process parameters including, at least

the electric field gradient, and

hydrodynamic force of sample fluid flow along the flow path through the separation chamber; and

introducing a flow of sample fluid into the separation chamber, the sample fluid comprising the analyte;

energizing at least a subset of the electrodes to establish an electric field gradient in the separation chamber effective to focus the analyte in the separation chamber.

24.' The method of claim 24, wherein the analyte is a charged analyte.

24.'' The method of claim 24, wherein the analyte is focused withy the aid of lipids, micelles or vesicles in the sample fluid.

25. The method of claim 24, wherein the molecular sieve comprises a gel.

26. The method of claim 25, wherein the gel is an organic gel.

27. The method of claim 25, wherein the gel is an inorganic gel.

28. The method of claim 25, wherein the gel is a fixed gel.

29. The method of claim 25, wherein the gel is a soluble gel.

30. The method of claim 25, wherein the gel has a molecular weight of between about 2000 and about 100,000.

31. The method of claim 24, wherein the molecular sieve comprises zeolite.

32. The method of claim 24, wherein the charged analyte comprises a biological molecule.

33. The method of claim 32, wherein the charged analyte comprises DNA.

34. The method of claim 32, wherein the charged analyte comprises RNA.

35. The method of claim 32, wherein the charged analyte comprises protein.

36. The method of claim 24, wherein the charged analyte comprises a molecule sorbed to a detergent.

37. The method of claim 36, wherein the detergent comprises SDS.

38. The method of claim 24, wherein additional fluid comprising charged analyte is introduced into the first chamber and focused.

39. The method of claim 24, wherein the charged analyte comprises an uncharged material sorbed into a charged carrier.

40. The method of claim 24, wherein the electric field gradient is changed during the focusing of the analyte.

41. The method of claim 24, wherein the electric field gradient is dynamically controlled.

42. The method of claim 24, wherein the electrophoresis device further comprises an electrode chamber with the electrodes positioned proximate the electrode chamber,

wherein the electrode chamber is separated from the separation chamber by the membrane, and wherein the membrane is a permeable material.

43. The method of claim 24, wherein the electrodes comprise an electrode array.

44. The method of claim 43, wherein each electrode of the electrode array is capable of being individually controlled.

45. The method of claim 43, wherein the electrode array is operative to generate an electric field gradient which can be dynamically controlled.

46. A method for focusing a charged analyte comprising:

providing a device for focusing a charged analyte comprising:

a separation chamber comprising an inlet for introducing a first liquid into the separation chamber and an outlet for exiting the first liquid from the separation chamber;

an electrode chamber comprising an electrode array and an inlet for introducing a second liquid into the electrode chamber and an outlet for exiting the second liquid from the electrode chamber; and

permeable material separating the separation and electrode chambers;

introducing a first liquid comprising at least one charged analyte into the separation chamber; and

applying an electric field gradient to the charged analyte in the first liquid to focus the charged analyte in the electric field gradient,

wherein the separation chamber contains molecular sieve operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters.

47. A method for focusing a charged analyte in a fluid medium comprising:

providing a device for focusing a charged analyte comprising:

a first block comprising a first trough having an inlet for introducing the first liquid to the first trough and an outlet for exiting the first liquid from the first trough;

a second block comprising a second trough having an inlet for introducing a second liquid to the second trough and an outlet for exiting the second liquid from the second trough, the second trough further comprising an electrode array positioned in the second trough,

wherein the first trough and the second trough are substantially coincident and form a channel when the first block is sealed to the second block; and

permeable material intermediate the first and second blocks,

wherein the permeable material divides the channel formed when the first block is sealed to the second block into a first chamber and a second chamber, the second chamber including the electrode array;

introducing a first liquid comprising at least one charged analyte into the first chamber;

applying an electric field gradient to the charged analyte to cause the charged analyte to focus in a region of the first chamber,

wherein the first chamber comprises molecular sieve operative to shift the location at which a stationary focused band of charged analyte forms under a given set of focusing process parameters.

48. A method of separating charged analytes comprising:

providing a device for focusing a charged analyte comprising a separation chamber and electrodes separated from the separation chamber by a conductive membrane and operative to generate an electric field in the separation chamber; introducing a first liquid comprising at least one charged analyte into the first chamber; and

applying an electric field gradient to the plurality of charged analytes in the first liquid to focus the plurality of charged analytes in the electric field gradient into stationary bands of charged analytes, each charged analyte forming a stationary focused band,

wherein the first chamber contains molecular sieve operative to shift the location at which each stationary focused band of charged analyte forms under a given set of focusing process parameters.

49. The method of claim 48, wherein stationary focused bands of charged analyte are separated on the basis of their molecular weights.

50. The method of claim 48, wherein the plurality of charged analytes comprises charged analytes that have the same charge to mass ratio.

51. The method of claim 48, wherein the plurality of charged analytes comprises charged analytes that have the same electrophoretic mobility.

52. The method of claim 48, wherein each stationary focused band of charged analyte is focused each at a stable location separate from the other charged analytes.

53. A method of separating charged analytes comprising:

providing a device for focusing a charged analyte comprising:

a separation chamber comprising an inlet for introducing a first liquid into the separation chamber and an outlet for exiting the first liquid from the separation chamber;

an electrode chamber comprising an electrode array and an inlet for introducing a second liquid into the electrode chamber and an outlet for exiting the second liquid from the electrode chamber; and

permeable material separating the separation and electrode chambers;

introducing a first liquid comprising a plurality of charged analytes into the separation chamber; and

applying an electric field gradient to the plurality of charged analytes in the first liquid to focus the plurality of charged analytes in the electric field gradient into

stationary bands of charged analytes, each charged analyte forming a stationary focused band,

wherein the separation chamber contains molecular sieve operative to shift the location at which each stationary focused band of charged analyte forms under a given set of focusing process parameters.

54. The method of claim 53, wherein the molecular sieve is operable to separate the stationary focused bands of charged analyte of similar electrophoretic mobilities and different molecular weights, each at a stable location separate from the other charged analytes.